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VIII.—*Recent Discoveries in the Antarctic Ocean.* From the Log-book of the Brig Tula, commanded by Mr. John Biscoe, R. N. Communicated by Messrs. Enderby. Read, 11th February, 1833.

THE brig Tula, of 148 tons, belonging to Messrs. Enderby, and commanded by Mr. John Biscoe, R. N., left the port of London on the 14th July, 1830, on a South-Sea sealing voyage, but with special instructions from her owners also to endeavour to make discoveries in a high southern latitude. She was liberally equipped with whatever appeared requisite or desirable on such an enterprise; and was accompanied by the cutter Lively, in the same employ, and attached to the Tula on the footing of a tender.

The two vessels, after touching at the Cape Verde Islands for salt, arrived off the Falkland Islands on the 8th November, and anchored in Port Louis, Berkeley Sound, on the 10th. Captain Biscoe speaks highly of the convenience of this port for vessels bound round Cape Horn: fish, bullocks, and fresh water can be easily procured, with a variety of anti-scorbutic herbs to use as vegetables: the entrance being also clear, the anchorage good, and the depth of water considerable close to the beach. A refitting yard here, he considers, could be very easily established, and would be both a great public and private benefit.

On the 27th November, having completed their water, the Tula and her consort again proceeded to sea; and, on their way to Sandwich Land, kept a vigilant look-out for the Aurora Islands, laid down by the Spaniards in lat.  $53^{\circ} 15' S.$ , long.  $47^{\circ} 57' W.$ ;\* but which, having been unsuccessfully sought for by Captain Weddell, and now again by Captain Biscoe, must be either considered henceforward as not existing, or looked for in some other position. On the 10th December, in long.  $29^{\circ} 14' W.$ , many icebergs were passed, which were conceived to be drifting between Sandwich Land and New South Shetland; and among them the two vessels parted company, to their mutual great anxiety, and did not again meet till the 14th. On the 20th, an island was made, in lat.  $58^{\circ} 25' S.$ , long.  $26^{\circ} 55' W.$ ; but its appearance being very discouraging,—in Captain Biscoe's words, 'terrific, being nothing more than a complete rock, covered with ice, snow, and heavy clouds, so that it was difficult to distinguish

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\* These islands were supposed to have been discovered by the ship Aurora, in 1762; and again seen in 1790, by the *Principessa*. In 1794, also, the corvette *Atrevida* went purposely to ascertain their position; and, after passing nine days in their immediate vicinity, reported the above as the latitude and longitude of the southernmost; at the same time placing a second in  $53^{\circ} 3' S.$ ,  $47^{\circ} 53' W.$ , and a third in  $52^{\circ} 37' S.$ ,  $47^{\circ} 43' W.$ —See Weddell's Voyage, p. 62: and other recent attempts made to find them have been equally unsuccessful—see Morrell's Voyages (New York, 1832).

one from the other,'—no attempt was then made to land on it. Proceeding to the southward, on the following day, another island was distinguished in the S.W., similar to the preceding one, which now bore W. by N.; and the cutter was directed to examine both, in which her success was very incomplete, the boats not being able to effect a landing on either. These were the Montague and Bristol Islands of the charts, but which Captain Biscoe places fifty miles further west than they are usually laid down. The thermometer stood at  $29^{\circ}$  in the air, and  $31^{\circ}$  in the water. A third, Friesland Island, was seen to the southward of them; and a fourth, to the northward.

Several following days were spent in endeavouring to get to the southward, and, if possible, also to the westward, there being strong indications of land in that quarter; but these were all unsuccessful. The field-ice was either quite continuous and unbroken, or where bays were formed in it, and entered, these were found open but a little way, and the vessels were obliged to return as they went in. Fortunately, the water was remarkably smooth even when the wind, which hung to the westward, blew strong; and this circumstance both facilitated the manœuvring of the vessels, and encouraged their crews to persevere, by confirming their surmises as to the existence of land in the neighbourhood. On the 29th, at noon, the latitude observed was  $59^{\circ} 11' S.$ , long.  $24^{\circ} 22' W.$ ; but the wind blowing then hard from the south-west, further investigation in that quarter was abandoned; the islands before seen were again sighted, and the longitudes of their centres being further determined, and confirmed to be about  $27^{\circ} W.$ , sail was made to the eastward.

Captain Biscoe was thus prevented from making any specific discovery in this meridian, though he has furnished strong presumptive evidence that a considerable body of land stretches due south from the known heads of Sandwich Land; while, on the other hand, the very high latitude ( $74^{\circ} 15' S.$ ) attained by Captain Weddell, a few degrees to the westward (viz., in  $36^{\circ} W.$ ), further proves that its western extremity is at no great distance from these heads.

On the 5th January (1831), the Tula and her companion were in lat.  $59^{\circ} 9' S.$ , long.  $21^{\circ} 52' W.$ ; and on the 7th, in lat.  $59^{\circ} 35' S.$ , long.  $20^{\circ} 21' W.$ ; closely skirting the field-ice the whole way, and examining every inlet, in hopes of finding a passage through it to the southward, and, as they hoped, to clear water. In this, however, they were constantly disappointed; and, on the contrary, on the evening of the 7th, says Captain Biscoe, 'my hopes in this direction were destroyed, for I suddenly found myself at the head of a bay of firm ice, with a view, from the mast-head, to an extent of at least twenty miles in every direction; and,

to the southward, the ice appeared so smooth and firm, that any one might have walked on it. The weather, too, was now so clear, that, I am convinced, land of any considerable elevation might have been seen eighty or ninety miles. What further astonished me was, that there were no living animals of any kind about this ice, with the exception of one or two small petrels,—not even any penguins, which at other times had been very numerous. These circumstances almost convinced me that this ice must have been formed at sea; the temperature of the water being then  $30^{\circ}$ , and that of the air  $31^{\circ}$ , with frequent and very heavy falls of snow. Nevertheless, there were strong indications of land in the south-west, though none was actually within our horizon; and the water continued very smooth.\*

From the 7th to the 16th January, the course made good was nearly due east; the latitude being then  $59^{\circ} 16'$  S., longitude  $7^{\circ} 14'$  W. The wind had hung during the interval to the south, with fresh breezes, on two occasions, from south-west, and a considerable sea, as though the distance from land was now increasing. The ice was also, from time to time, more broken into bergs, fifty-eight of them being at one time in sight together; and on the 16th, the temperature of the water was  $34^{\circ}$ , of the air in the shade  $45^{\circ}$ , in the sun  $77^{\circ}$ , with a corresponding genial warmth to the feelings of the crew. The wind also veered now to the westward, and the vessels were hauled up to the south-east, steering between ice-bergs and broken patch ice; but scarcely any birds were yet to be seen; though, on the 20th, two nellys\* were observed, and one albatross, being the first since leaving the latitude of South Georgia. On the 21st, the latitude attained was  $66^{\circ} 16'$ , longitude  $00^{\circ} 24' 30''$  W.; temperature of the water  $36^{\circ}$ , of the air in the shade  $38^{\circ}$ ; no ice in sight; but the wind again drawing to the south and south-east, and many indications of land in the same quarter. Several spotted eaglets, (one, apparently, a new variety, rather larger than a Cape pigeon, with brown beak, wings, and head, the other parts white,) with some blue petrels, were in sight. On the 23d, the wind was from S.S.W., and came in puffs, as from land; the water was smooth, and at times discoloured; and many eaglets and Cape pigeons hovered about the vessels; lat.  $67^{\circ} 42'$  S., long.  $3^{\circ} 31'$  E.; temperature of the air at midnight  $31^{\circ}$ , of the water  $35^{\circ}$ . The ice now, however, began again to close in, and the wind to hang to the south-east, frequently fresh, but generally more steady than for some days previously. On the 27th the latitude was  $68^{\circ} 1'$  S., long.  $10^{\circ} 7'$  E.; temperature of the air  $31^{\circ}$ , of the water  $34^{\circ}$ ; wind E.S.E., blowing strong, with a heavy swell; much snow falling, and many ice-

\* "A bird of the petrel kind, of a mixed grey and brown colour, an unpleasant appearance, and very voracious."—Weddell, p. 59.

bergs in sight, besides patch ice, or rather, as it appeared, field-ice, with its outer edge somewhat broken. Few birds were in sight, and those chiefly penguins, seated on icebergs. Much danger was also here encountered, while working among the icebergs and patches, but the object of getting to the south-east was steadily pursued. On the 1st February, the latitude was  $68^{\circ} 51' \text{ S.}$ , long.  $12^{\circ} 22' \text{ E.}$ ; temperature of the air  $30^{\circ}$ , of the water  $34^{\circ}$ . A seal was seen near the Lively; and many snow-birds, with brown eaglets, hovered about the vessels; while at different times, birds, thought at the time to be land-birds, but afterwards believed to be king-birds, which, though aquatic, do not go far from land, were seen at a distance flying towards the south-west. The water also was of a lighter colour; but no land could be distinctly or certainly made out, nor any soundings obtained. On the 4th, the appearances became still more conclusive, and the impression was repeatedly renewed that land was seen; but yet, even on this meridian, Captain Biscoe is not certain on this head; and the ice trending now to the northward, a somewhat lower latitude was necessarily gained. On the 8th, at noon, the position was  $67^{\circ} 12' \text{ S.}$ ,  $27^{\circ} 15' \text{ E.}$ ; temperature of the air  $33^{\circ}$  (in the sun  $84^{\circ}$ ), of the water  $33^{\circ}$ . The wind then changed to the E.S.E., and blew hard for some days, with a heavy tumbling sea, and much danger from icebergs; through all which difficulties, however, the vessels persevered in making way to the eastward. On the 17th, the position was  $66^{\circ} 44' \text{ S.}$ ,  $38^{\circ} 5' \text{ E.}$  On the 19th, they crossed Captain Cook's track in 1773, and found the field-ice precisely in the position in which he left it. On the 25th, saw a very distinct appearance of land in lat.  $66^{\circ} 2'$ , long.  $43^{\circ} 54' \text{ E.}$ , temperature of the water  $30^{\circ}$ , with many ice-islands and patches of field-ice also in sight; but it was speedily lost among these, and could not be again distinctly made out. Several seals and penguins, with one young sea-elephant, were here also seen; and the margin of the solid body of ice was nearly as high as the North Foreland, and much resembled it. At length, on the 27th, in lat.  $65^{\circ} 57' \text{ S.}$ , long.  $47^{\circ} 20' \text{ E.}$ , land was distinctly seen, of considerable extent, but closely bound with field-ice; the temperature of the air at the time being  $22^{\circ}$ , considerably lower than had been previously experienced; that of the water  $30^{\circ}$ ; and, for the first time, extraordinarily vivid coruscations of aurora australis, 'at times rolling,' says Captain Biscoe, 'as it were, over our heads in the form of beautiful columns, then as suddenly changing like the fringe of a curtain, and again shooting across the hemisphere like a serpent; frequently appearing not many yards above our heads, and decidedly within our atmosphere. It was by much the most magnificent phenomenon of the kind that I ever witnessed; and although the vessel was in

considerable danger, running with a smart breeze and much beset, the people could scarcely be kept from looking at the heavens instead of attending to the course.'

Every effort was now made to close with the land thus discovered; and the most imminent risk was run during a heavy gale of wind, which began on the 5th March, and continued, increasing to a perfect hurricane, till the 7th. In the course of it, the two vessels again separated, the *Tula* was much injured, several of her men were severely hurt, and their health seriously affected by exposure to the cold. Its direction was between E. N. E. and N. E.; and, on the 8th, when an observation was again obtained, the drift was ascertained to have been 120 miles N. N. W. Sail being then made to endeavour to get to the south-east, on the 16th, nearly the same land was again made; the longitude being now  $49^{\circ}$  E. A head-land, previously seen, was recognized, and called Cape Ann; and unceasing efforts were made, for some days, to approach nearer it, but all in vain: and the ship's company so rapidly sunk in health and strength, that it became imperatively necessary to seek a more genial climate. Great uneasiness was also now entertained about the safety of the *Lively* cutter, which had not been seen since the 6th instant; and which, it seemed probable (if she had survived the gale at all), had sought a lower latitude, and made for Van Diemen's Land. On the 6th April, after nearly three weeks of the severest fatigue, Captain Biscoe determined to do the same thing, never having approached this forbidden shore (which has, with great propriety, been called Enderby's Land) nearer than from twenty to thirty miles;—and arrived in the *Derwent* on the 7th May ensuing; two of his men having died on the passage, and the others being so reduced that the ship was entirely navigated by the three officers, one man, and a boy. The nights, during most of the period, were so dark, except when occasionally illumined by the aurora, that in the helpless state of the crew, and their utter inability to meet any sudden exigency, it was deemed expedient to lie to every evening till the following morning. The winds were uniformly fair after getting below  $60^{\circ}$  south altitude.

The *Lively* did not rejoin the *Tula*, in the *Derwent*, till the following August, having been unfortunate in her first land-fall, and been compelled to put in, and refresh her people at Port Philip, in New South Wales. Both vessels again put to sea on the 10th October, 1831, and remained on the coast of New Zealand, and among the Chatham and Bounty Islands, sealing, but with very indifferent success, till the 4th January, 1832. They then again bore away to the south-east; the only remark of geographical importance, during this interval, being a correction in the position of the Bounty Islands, from  $179^{\circ} 6'$  E., in which

they are usually placed, to  $178^{\circ} 26'$  E., in which Captain Biscoe conceives them to lie.

The first object now pursued was to touch at the Nimrod Islands, laid down in  $56^{\circ} 3'$  S., and  $157^{\circ} 50'$  W.; but the search for them was ineffectual; and Captain Biscoe is certain that they do not exist, at least where thus placed. The water here, however, looked discoloured, as though on a bank, but no soundings could be obtained. On the 14th January, in  $56^{\circ} 26'$  S.,  $156^{\circ} 48'$  W., many birds were seen, and much sea-weed was floating about. Many squalls of snow also came from the southward; and on the 25th, in latitude  $60^{\circ} 45'$  S., longitude  $132^{\circ} 7'$  W., icebergs were again met with; the mean temperature of the air being  $37^{\circ}$ . On the 31st, about a hundred of these bergs were in sight together; and the clouds hung constantly low and heavy in the south-west, as though land was in that quarter; but the wind coming round to the north-east, and the barometer falling, with other indications of a gale, it was considered inexpedient to examine this appearance more closely.

On the 3d February, in lat.  $65^{\circ} 32'$  S., long.  $114^{\circ} 9'$  W., the phenomenon was observed of an ice-island falling to pieces, 'which it did very near the Tula, with a noise like a clap of thunder, and the sea was immediately covered with the fragments, only a small nucleus of the original mass remaining together.' On the 12th February, in lat.  $66^{\circ} 27'$  S., long.  $81^{\circ} 50'$  W., many birds were again seen (albatrosses, penguins, Cape pigeons, &c.) with several hump and finned-back whales; and no fewer than two hundred and fifty ice-islands were counted from the deck. On the 15th land was again seen, bearing E.S.E., but at a great distance; the latitude being then  $67^{\circ} 1'$  S., long.  $71^{\circ} 48'$  W.; and sail was made to close it. On the following morning, it was ascertained to be an island, and called Adelaide Island, in honour of her majesty: and, in the course of the ensuing fortnight, it was further made out to be the westernmost of a chain of islands, lying E.N.E. and W.S.W., and fronting a high continuous land, since called Graham's Land, which Captain Biscoe believes to be of great extent. The range of islands has been also since called Biscoe's Range, after the discoverer.

'Adelaide Island has a most imposing and beautiful appearance, with one high peak shooting up into the clouds, and occasionally appearing both above and below them, and a lower range of mountains extending about four miles, from north to south, having only a thin covering of snow on their summits, but towards their base buried in a field of snow and ice of the most dazzling brightness, which slopes down to the water, and terminates in a cliff of ten or twelve feet high, riven and splintered in every direction to an extent of two or three hundred yards from its edge. At a distance

of three miles no bottom could be found with 250 fathoms of line ; and round all the islands the depth of water was considerable. One, called Pitt's Island (in lat.  $66^{\circ} 20' S.$ , long.  $66^{\circ} 38' W.$ ), has many bays ; and forms, with the main land behind, a good harbour for shelter, but the bottom is rocky. No living animal was found on any of these islands ; and not many birds, although only a few miles to the northward they were very numerous.'

On the 21st February, Captain Biscoe succeeded in landing on what he calls the main-land, and took formal possession of it : the highest mountain in view being called Mount William, after his Majesty ; and the next, Mount Moberly, in honour of Captain Moberly, R.N. The place was in a deep bay, ' in which the water was so still, that could any seals have been found, the vessels could have been easily loaded, as they might have been laid alongside the rocks for the purpose. The depth of water was also considerable, no bottom being found with twenty fathoms of line almost close to the beach ; and the sun was so warm that the snow was melted off all the rocks along the water-line, which made it more extraordinary that they should be so utterly deserted.' The latitude of Mount William was determined to be  $64^{\circ} 45' S.$ , long.  $63^{\circ} 51' W.$

Captain Biscoe, after this, repaired to the South Shetland Islands, where he was driven ashore, lost his rudder, and very narrowly escaped shipwreck ; and, after touching at the Falkland Islands, near which he again parted company with the *Lively*, proceeded to St. Catharine's, in Brazil, where he learned her total loss on Mackay's Island (one of the Falklands) ; the crew, however, having been saved, and brought away by a Monte Video cruiser. He thence returned home ; and the following general observations may properly conclude this abstract of his log.

1. In the very high latitudes, when actually, as it were, within the ice, the winds were almost uniformly from the south, round by S.E. to E.N.E. ; which, being contrary winds to a vessel in proceeding from west to east, Captain Biscoe is inclined to recommend that future attempts of the same nature should be made in the opposite direction, viz. from east to west. Outside the ice, however, the winds were constantly westerly ; and it may therefore admit of doubt, whether the convenience of having a fair wind at command, whenever required (as in the *Tula's* case), to run for shelter and repairs, and of which advantage may be then safely taken, be not of more importance, than when its possession can seldom be of vital consequence, and may frequently lead to rashness and imprudence. 2. The *Auroræ Australes* were only occasional ; but were sometimes extraordinarily vivid, and in these cases were always succeeded by bad weather. They were not observed to have any effect on the compasses. 3. The following table shows the variation of the compass throughout the voyage :—



Latitude observed.	Longitude by Chronometer.	Variation.	Latitude observed.	Longitude by Chronometer.	Variation.
58° 18' S.	23° 14' W.	2° 00" E.	41° 24' S.	150° 25' E.	11° 00" E.
59 35	18 54	1 30	40 12	178 13 W.	10 00
58 02	10 02	8 12 W.	52 44	175 52	13 00
59 16	7 14	11 30	56 26	170 30	16 00
62 25	2 28	15 00	55 55	149 49	Decreasing E.
66 48	1 02 E.	20 30	64 21	119 43	12 00
67 40	6 33	19 44	64 06	110 46	28 00
67 57	8 28	21 12	66 27	78 04	— 32
68 30	14 42	23 12	64 53	67 03	26 20
68 43	22 25	28 44	64 20	65 20	26 00
68 58	23 45	29 10	37 52	51 38	12 00
66 56	36 57	33 00	36 46	47 50	11 00
67 50	36 38	37 12	33 32	44 50	8 00
66 46	41 10	40 22	31 05	43 46	4 30
65 16	49 27	40 10	20 01	29 00	6 04 W.
61 16	64 47	42 28	13 29	24 47	7 40
54 57	104 32	27 38	36 53 N.	34 04	20 40
51 53	129 09	None.	39 34	23 36	20 40
48 40	139 55	Easterly.			

[*Note.*—As a whole, the above voyage is interesting. It has added one more to the many examples previously set by British seamen of patient and intrepid perseverance amidst the most discouraging difficulties; and the exertions used have not been without a certain reward. Two distinct discoveries have been made, at a great distance the one from the other; and each in the highest southern latitude, with very few exceptions, which has yet been attained, or in which land has yet been discovered. The probability seems thus to be revived of the existence of a great Southern Land, yet to be brought upon our charts, and possibly made subservient to the prosperity of our fisheries; so strongly, indeed, are Messrs. Enderby impressed with this probability, that, undeterred by the heavy loss which they have incurred by the late voyage, they propose again sending out Captain Biscoe this season, on the same research. To encourage his future exertions, by paying a just tribute to the past, the Council of the Royal Geographical Society have awarded him their Royal Premium for 1832. And the Lords Commissioners of the Admiralty have resolved to send an officer of the Royal Navy, Mr. Rea, as passenger in his ship, to assist him in those scientific observations which, whatever may be the fate of the commercial speculation confided to him, will probably make his next voyage still more valuable than that now concluded. The expedition will sail in July.]